AUTHOR INDEX OF PAPERS PUBLISHED IN VOLUME 71 OF *JOURNAL OF DAIRY SCIENCE*

A

Abrams, S. M., 1955, 2166
Achacoso, A. S., 3323
Adams, M. W., 1275
Addis, P. B., 3173
Adkinson, R. W., 1628, 2384, 3323
Agboola, H. A., 2264
Aggeler, J., 2830
Aguilar, A. A., 1204
Aharoni, Y., 964
Aiello, R. J., 1813
Akasha, M. A., 1152
Akers, R. M., 826, 2904, 2936
Al-Mashikhi, S. A., 1747, 1756
Alfaro, E., 1295
Allen, J. C., 633
Allen, S. D., 1288
Alli, I., 152
Allison, J. S., 1676
Alston-Mills, B., 2246
Ambrosoli, R., 24
Amer, M. A., 3222
Amos, H. E., 2658
Anantheswaran, R. C., 589
Anderson, G. W., 3470
Anderson, K., 257
Anderson, K. I., 1769
Anderson, P. M., 2166
Anderson, R. R., 337, 1152, 2554
Annett, R. G., 10
Annexstad, R. J., 355
Arambel, M. J., 159, 2412, 2457, 3021
Arave, C. W., 3021
Argyle, J. L., 1178
Arieli, A., 964
Armentano, L. E., 409, 990, 1813
Armstrong, D. V., 545, 1093, 2480
Ashoor, S. H., 1492
Atkins, K. B., 109
Atwal, A. S., 1000
Atwell, D. G., 2689
Ax, R. L., 239, 1073

B

Bachman, K. C., 819, 925
Baer, R. J., 1267, 3179
Bahr, J. M., 658
Baker, B. E., 152
Baker, C. C., 2699
Baldwin, R. L., 1178
Bandler, D. K., 613
Bandstra, B. A., 1789
Banos, G., 1346
Bar, A., 2723
Baracos, V. E., 2923
Barbano, D. M., 505, 534, 604, 2342, 2655
Barefield, K. L., 2246
Barker, K. B., 2967
Barrett, E. L., 17
Barton, B. A., 3470
Barton, F. E., II, 2986
Batra, T. R., 1000, 1011, 2735
Bauchart, D., 1632
Bauman, D. E., 1232
Beal, W. E., 2904
Beaudry, T. F., 204, 485
Beckman, J. S., 3378
Beede, D. K., 971, 1573
Behe, M. J., 316
Beighle, D. E., 3362
Beitz, D. C., 1211, 3352
Bell, B. R., 3446
Bellin, M. E., 1073
Belo, A. T., 2250
Belyea, R. L., 1275, 2250, 3026
Benkerroum, N., 3237
Berg, I. E., 2898
Berg, J. N., 3283
Berger, L. L., 421, 2416
Berger, P. J., 223, 1789
Berman, A., 809, 1085, 3497
Bernard, J. K., 2658
Bezkoravainy, A., 3214
Bhowmik, T., 2358
Bingham, E. W., 316, 324
Bissell, M. J., 2830
Bitman, J., 1389
Blackmon, D. M., 1295
Blake, R. W., 1378, 3425, 3516
Block, E., 2709
Bloom, A. S., 1361
Blosser, T. H., 398
Blum, J. W., 1170
Boddie, R. L., 261, 3143
Bodyfelt, F. W., 2010
Boman, R. L., 159
Bonczek, R. R., 1659, 2470
Bond, J., 398
Bowman, J. M., 982
Bradford, G. E., 2486
Brand, A., 2772, 2782
Brasington, C. F., 2699
Bray, D. R., 848, 1396
Brazeau, P., 92
Briceno, J. V., 1647
Bright, S. A., 1389
Brisson, G. J., 2181
Britt, J. H., 3092
Broderick, G. A., 1536, 1546, 1851, 2428
Brower, D. P., 1141
Brown, D. L., 513, 530, 2486
Brown, T. F., 134
Brudvig, S. A., 1701
Bruhn, C. M., 857
Bruhn, J. C., 857, 917, 2373, 2885
Brunner, J. R., 901
Buchanan-Smith, J. G., 982
Bucy, J., 1127
Burns, J. C., 518
Burnside, E. B., 1034, 2210, 2730
Butcher, K., 257
Butcher, K. R., 3425
Buyong, N., 2630
Byler, D. M., 2622

C

Cady, R. A., 1346
Caffin, J. P., 2035
Cahill, V. R., 2264
Call, E. P., 1926, 2572
Calvo, N., 1783
Canale, C. J., 373, 2166
Canseco, R. S., 2767
Capuco, A. V., 826
Carley, D. H., 2315
Carroll, D. J., 3470
Casella, G., 3061, 3071
Casper, D. P., 164, 173, 1267, 3179
Cassell, B. G., 204, 381, 405, 485, 1367, 1880, 1993, 2220, 3405
Cassida, K. A., 381
Cavalier, J. P., 1764
Cavanaugh, J. R., 1147
Cazzola, F., 582
Cevallos, G. F., 1378
Chalupa, W., 2143, 2944
Chandan, R. C., 1701
Chandler, J. E., 1638, 3323
Chapin, L. T., 99, 1063
Chauhan, V.P.S., 195
Cheng, S. G., 901
Cherney, D.J.R., 2112
Cherney, J. H., 2112
Chew, B. P., 3112, 3120
Choi, Y. J., 2898
Christen, G. L., 1432
Christiansen, V. E., 2535
Clark, D. H., 159
Clark, J. H., 658, 1232
Clark, R. M., 61
Cohick, W. S., 1232
Collier, R. J., 819, 848
Congleton, W. R., Jr., 1897, 1905, 1916
Conrad, H. R., 722, 2264
Cook, D. L., 3505
Coppock, C. E., 1239, 2699, 3334
Corey, A. R., 1897
Corrado, L. J., 2246
Couture, Y., 92
Craig, J. C., Jr., 2388
Crang, R. E., 2366
Crist, W. L., 1940
Cromwell, R. P., 2256

Croom, W. J., Jr., 2123
Cropp, R., 2304
Crosetti, C. F., 3369
Crowe, C. T., 1295
Culotta, C. P., 1960
Cummins, K. A., 650
Cunningham, M. D., 2959
Curtis, C. R., 3302

D

D'Aoust, J.-Y., 3230
Dahm, P. F., 3425
Dalton, D. L., 1259
Danell, B., 467
Daniel, L. R., 3112, 3120
Darden, D. E., 3274
Dawson, D. P., 1301
Dawson, K. A., 2967
Deacon, M. A., 745
DeBoer, G., 745
Deetz, D. A., 1860
Deetz, L. E., 421
Dehority, B. A., 722
Deiter, R. E., 1789
DeLorenzo, M. A., 848, 1396, 2753
deMan, J. M., 582
Denise, S. K., 1093, 1283
Dentine, M. R., 214, 990, 2502
Di Stasio, L., 24
Dill, D. E., 879
Dissen, G. A., 3489
Dobson, D. C., 3021
Dong, M. C.,3040, 3047, 3053
Donker, J. D., 1355
Donnat, J. P., 1632
Douglass, L. W., 2246
Dowlen, H. H., 1676
Dubreuil, P., 92
Ducrocq, V., 2543, 3061, 3071
Dufour, J. J., 1840
Durand, D., 1623
Duthie, A. H., 574, 1764
Dybing, S. T., 1701

E

Eastridge, M. L., 2284, 2959
Eberhart, R. J., 854
Eggert, R. G., 1515
Ehle, F. R., 355, 2677
El-Samragy, Y. A., 1135
Elvinger, F., 1515
Emanuele, S. M., 1573, 1947
Emanuelson, U., 467
Emerton, B. L., 1676
Emery, R. S., 1063
Emmons, D. B., 3230
Enright, W. J., 99
Eppler, C. M., 68
Erb, H. N., 1406, 2557
Erdman, R. A., 109, 754, 1198, 2406, 2670, 3246, 3509
Ernstrom, C. A., 1499
Erskine, R. J., 854
Evans, J. J., 2658
Everson, T. C., 2820

F

Fahey, Jr., G. C., 2416
Fairbairn, R., 152
Farrell, H. M., Jr., 316, 324, 2622
Farver, T. B., 2513
Faust, M. A., 3092
Fellner, Y., 2250
Fennema, O., 2630
Fernades, C. F., 3222
Fernando, R. L., 2689, 2790
Ferreira, C. L., 306
Fetrow, J., 257
Fettman, M. J., 3302
Fielding, A. S., 1295
Fisher, D. S., 518
Flakoll, P. J., 3352
Flamenbaum, I., 809, 1085, 3497
Flanagan, J. F., 2388
Flipot, P. M., 1840
Foegeding, E. A., 41
Fogwell, R. L., 1063
Folman, Y., 1085
Forsen, R., 3197
Foster, W. W., 223, 3415
Fox, J. R., 574, 1764
Fox, L. K., 2915, 3521
Frank, J. F., 1432, 1484
Franke, A. A., 917, 2373, 2885
Fransen, S. C., 1860, 2462
Freeman, A. E., 223, 477, 1789, 3437
Friend, B. A., 3203
Fritz, J. O., 3345
Froetschel, M. A., 2658
Frohli, D. M., 1170
Froseth, B. R., 275
Fujino, S., 1777
Fuke, Y., 1423
Funk, D. C., 3148
Furtado, M. M., 2877

G

Galland, J. C., 1104, 2535
Galligan, D. T., 2944
Galton, D. M., 505, 1406, 1417
Gardner, R. W., 996
Garrett, J. M., 10
Garverick, H. A., 3489, 3505
Gaskins, C. T., 2915
Gates, R. N., 2449
Gaudreau, P., 92
Gaynor, P. J., 2175
Geiger, R. M., 17
Gentry, R. P., 1295
Gianola, D., 452, 2491, 2790
Gilbert, B. J., Jr., 3021
Gilliland, S. E., 306
Gilmore, T. M., 299
Glatz, B. A., 1769
Glimm, D. R., 2923
Goff, J. P., 1211
Goodall, C., 613
Goodger, W. J., 2535
Goodwill, R. E., 3425
Gough, R. H., 2384
Granacher, B., 3267
Graves-Hoagland, R. L., 1058
Greene, W. A., 1406
Griel, L. C., Jr., 1161
Grieve, D. G., 982
Griffith, G., 3003
Grohn, Y. T., 2556
Grossman, M., 1598
Gruebele, J. W., 2310
Grummer, R. R., 117, 1813, 2677
Gunderson, S. L., 1204
Gutierrez, J., 1378
Gwazdauskas, F. G., 2278, 2767

H

Ha, J. K., 1259
Hadsell, D. L., 762
Hafi, C.B., 498
Hallerman, E. M., 3378
Hancock, D. D., 2915
Hansen, A. P., 41
Hansen, L. B., 788, 3148
Hansen, W. P., 355, 712
Harbers, L. H., 954
Harlander, S. K., 275
Harmon, R. J., 366, 1823, 1940, 2967
Harp, J. A., 835
Harpster, H. W., 1955, 2166
Harris, B., Jr., 414, 1647
Harris, D. M., 513
Harrison, G. A., 346, 1823, 2967
Harrison, J. H., 1860, 2462
Hasegawa, H., 627
Hashizume, K., 1439, 1447
Haslam, S. Z., 2843
Hattier, M. M., 2384
Hayen, M. J., 925
Head, H. H., 1515, 3274
Heiland, W. K., 2388
Heinrichs, A. J., 2193, 2203
Hemken, R. W., 346, 366, 1587, 1823, 1868, 1940, 2187, 2967, 3362
Henderson, C. R., 3128, 3135, 3399
Her, E., 1085
Herbein, J. H., 1248, 2936
Hicks, C. L., 1127, 2611
Hidiroglou, M., 442

Hinz, P. N., 477
Hoagland, T. A., 1058
Hoblet, K. H., 2284
Hocking, P. M., 1011
Hoffman, P. C., 409
Hogan, J. S., 245, 2520
Holleman, D. F., 1189
Holmann, F. J., 1378
Holmes, C. R., 2175
Holsinger, V. K., 2388
Holt, D. L., 2044
Hong, B. J., 1536, 1546, 1851
Hoover, W. H., 737
Horner, J. L., 1239, 3334
Horst, R. L., 1211
Hoschele, I., 452
Hough, G., 1783
Hoyt, P. G., 1638
Huang, E. A., 1701
Huber, J. T., 2480
Hueston, W. D., 2284
Hughes, T. L., 1063
Hundrieser, K., 61
Hunter, R., 2480
Huntington, G. B., 124, 1803, 2395
Hurley, W. L., 658

I

Ilic, D. B., 1492
Illg, D. J., 173
Im, S., 2790
Irvine, D., 1472
Ishibashi, T., 3482
Isshiki, H., 627
Ivan, M., 2181

J

Jackson, J. A., Jr., 2187
Jacobson, R. E., 2297
Jain, N. C., 1625, 2513
James, R. E., 870, 3415
Janicki, F. J., 2440
Jaquette, R. D., 2123
Jasinski, E. M., 589, 596
Jaster, E. H., 705, 2689, 3345
Jelen, P., 2891, 3167, 3188
Jenkins, K. J., 435, 442, 3003, 3013
Jenq, W., 2366
Jimenez-Flores, R., 2640
Johnson, D. E., 1204
Johnson, D. G., 712, 1659
Johnson, J. C., Jr., 2151
Johnson, M. A., 946
Johnson, T., 1830
Jones, B. A., 525
Jones, G. M., 539, 1691, 2292
Jones, L. R., 879
Jordan, W. K., 2342
Jorgensen, N. A., 697, 727, 1556, 1566
Jung, H. G., 1526
Jung, Y. C., 187
Junkins, L. L., 737

K

Kaim, M., 1085
Kaiser, H. M., 2799
Kakuda, Y., 582, 1455, 1472
Kallfelz, F. A., 3369
Kamaly, K. M., 2349
Kaminogawa, S., 1423
Kamppainen, R. J., 650
Kaneda, M., 1132
Kang, Y. C., 29
Kange, Y.-J., 1484
Kawamura, N., 3482
Keller, W. L., 2898
Kelley, D. H., 3437
Kennedy, B. W., 773
Kennelly, J. J., 745, 1259, 2135, 2923
Kensinger, R. S., 1161
Kent, B. A., 2412, 2457
Keown, J. F., 3154
Kidwell, W. R., 1507
Kilara, A., 589, 596
Kilmer, R. L., 863
Kindstedt, P. S., 285
King, V. L., 1083
Kirkpatrick, B. W., 2502
Kjelgaard, W. L., 2166
Klei, L., 2744
Kleppe, B. B., 1813
Koch, U., 901
Koegel, R. G., 1536, 1546
Kohlmann, K. L., 1728
Kohn, R. A., 932
Konstance, R. P., 2388
Kontusaari, S., 3197
Koops, W. J., 1598
Kosikowski, F. V., 285, 557, 2333
Kozak, J. J., 2817
Kozlowski, S. M., 613
Kramer, J.K.G., 435, 3003
Kronfeld, D. S., 2143
Kuck, A., 223
Kung, L., Jr., 3292

L

La Grange, W. S., 1789
Labore, J. M., 1239, 2699, 3334
Ladisch, M. R., 1728
Lamb, R. C., 159
Lambert, P. J., 1189
Langer, D. L., 2187
Langlois, B. E., 1940
Lanham, J. K., 1239, 2699, 3334
Lapiere, H., 92
Larson, L. L., 181, 498
Lawrence, C. M., 2373
Lawstuen, D. A., 788
Lazarus, W. F., 1667
Lee, A. J., 800, 1000, 1011, 2735
Lee, C. N., 3505
Lee, H., 3203
Lefaivre, J., 1632
Legates, J. E., 1025
Leibensperger, R. Y., 1220
Lenssen, A. W., 954
Lenz, R. W., 1073
Leonard, M., 2709
Lewin, H. A., 2526
Li-Chan, E., 1747
Lin, C. Y., 800, 1000, 1011, 2735
Linden, G., 1464
Linn, J. G., 355, 712
Lippke, H., 2986
Littledike, E. T., 1211
Liu, D. J., 2799
Lohuis, J.A.C.M., 2772, 2782
Lopez, J. W., 1288
Lough, D. S., 1161
Lu, C. D., 697
Luginsland, T. R., 545
Lundquist, R. G., 712
Lynch, G. L., 2416
Lyon, K. A., 843

M

Mackinlay, A. G., 2898
Macleod, G. K., 982
Manji, B., 1455
Marsh, W. E., 2944
Marteniuk, J. V., 1830
Marth, E. H., 2349, 2358
Martin, F. G., 819
Martin, J. L., 1073
Martinez, M. L., 800
Martinez, S. B., 893
Martz, F. A., 1275, 2250, 3026
Marx, G. D., 1355
Matsouka, H., 1423
Matthews, K. R., 1940
Mazzocco, P., 24
McAllister, A. J., 1000, 1011, 2735
McCarthy, B., 3283
McCutcheon, S. N., 1232
McDaniel, B. T., 214, 232, 3092, 3453, 3463
McDaniel, M. R., 2010
McDonald, J. S., 352, 2915
McFadden, T. B., 826, 2904
McGilliard, M. L., 539, 870, 2292, 3415
McKay, L. L., 275
McKellar, R. C., 3230
McNamara, J. P., 643
Meinert, T. R., 2220, 3405

Memon, M. A., 1638
Merchen, N. R., 421, 2416
Merrill, A., 2151
Merrill, W. G., 1417
Mertens, D. R., 2112
Metcalfe, J., 2108
Meyer, K., 1034, 2210
Middaugh, R. P., 1267, 3179
Miller, D. J., 239
Miller, G. Y., 2284
Miller, K. P., 2470
Miller, P. D., 1967
Miller, R. H., 1389, 2508
Miller, W. J., 1295
Mingfeng, L., 2241
Minocha, H. C., 1301
Mistry, V. V., 2333
Misztal, I., 1319, 1330, 2491
Mitchell, J., 1288
Mocquot, J.-C., 1972
Modler, H. W., 2003
Mohamed, O. E., 525, 2677
Mohanam, S., 1507
Mollett, T. A., 3489
Montgomery, M. J., 2175
Moore, K. J., 705, 2689, 3345
Moore, E. D., 3446
Morisset, J., 92
Moro, O., 1783
Morrill, J. L., 1301
Morrison, S. R., 2486
Morrow, D. A., 1830
Morse, D., 848, 925, 1396
Moseley, W. M., 99
Mote, C. R., 1676
Moxley, J. E., 290
Moya, J. R., 1239
Muck, R. E., 2992
Mueller, C. R., 173
Mullen, K., 1472
Muller, L. D., 381, 946, 1161, 2166, 2193, 2203
Mullinex, B. G., Jr., 2151
Murphy, M. R., 674, 687
Myers, R. M., 1025

N

Nadarajah, K., 2730
Nagawa, M., 1777
Nakabayashi, A., 1777
Nakai, S., 1747, 1756
Natzke, R. P., 848, 1396, 1515
Nave, A., 3378
Nave, D. H., 2699, 3334
Neathery, M. W., 1295
Nebel, R. L., 1367, 1682, 2278
Nejjar, Y., 1464
Nestor, K. E., Jr., 366
Ng-Kwai-Hang, K. F., 290, 1711, 1720, 1740
Nickerson, S. C., 84, 261, 3143
Nielsen, S. S., 1728
Niemialtowski, M., 780
Nieto Ordaz, R., 3026
Nipper, W. A., 3323
Nishimura, S., 1132
Nissen, S., 3352
Nixon, D. A., 1152
Nocek, J. E., 932, 2051, 2070
Nolan, T. J., 2526
Nonnecke, B. J., 780, 835
Norman, H. D., 204, 485, 1880, 2232
Novakovic, A., 2322
Nytes, A. J., 1566

O

O'Connor, A. M., 971
O'Connor, J. J., Jr., 3080
O'Leary, J., 1127
O'Neill, K., 3390
Ockerman, H. W., 2264
Oetzel, G. R., 3302
Olivas, M. A., 1104
Oliver, S. P., 1078, 1676, 2584
Olson, J. D., 1204, 3302
Olson, K. E., 3425
Oltenacu, P. A., 3080
Orma, A. H., 2250
Oskam, K., 2256
Osuagwuh, A.I.A., 2108
Otterby, D. E., 355, 712
Ouweltjes, W., 773
Owen, F. G., 181
Owen, J. R., 3446
Owens, W. E., 261, 1934, 3143
Ozimek, L., 2891

P

Paape, M. J., 250, 2508
Padgitt, D., 3283
Pagliarini, E., 887
Painter, C. L., 1638
Pallavicini, C., 887
Panciera, M. P., 1536
Paquet, D., 1464
Parfet, J. R., 3505
Park, C. E., 3230
Park, C. S., 2830, 2898
Park, R. L., 996
Parnell-Clunies, E., 582, 1472
Parrett, N. A., 2264
Parris, N., 324
Parsons, J. G., 299
Partridge, J. A., 2877
Pastore, S. C., 409
Patterson, J. A., 2959, 3292
Pearson, R. E., 485, 2220, 2278, 3405
Pelletier, G., 92
Peri, C., 887
Perlman, R., 2763
Peterson, L. G., 1417
Petersson, K. H., 3369
Petit, H. V., 2181
Petitclerc, D., 92
Philipsson, J., 467
Phillips, K. R., 3100
Pitt, R. E., 1220
Plimpton, R. F., 2264
Poch, M., 3214
Polan, C. E., 1248, 2936
Politis, I., 1711, 1720, 1740
Pollak, E. J., 2744, 3061, 3071
Pond, K. R., 518
Posler, G. L., 954
Poutrel, B., 2035
Powell, R. L., 1609, 1880, 2232
Prange, R. W., 525
Pratt-Lowe, E. L., 17
Price, S. G., 727
Pritchard, D. E., 1097
Pugh, D. G., 1295

Q

Quaas, R. L., 1310, 1338, 2543, 2744, 3061, 3071
Quinn, M., 1288

R

Rajamahendran, R., 2767
Rakes, A. H., 2123
Ramsey, H. A., 1301
Reddy, P. G., 1301
Reed, B. A., 530
Reeves, J. B., III, 143, 388, 398, 2976, 3509
Reinbold, R. S., 1499, 1799
Ren, T. J., 1432
Reynolds, C. K., 1803, 2395
Reynolds, P. J., 124, 2395
Richard, A. L., 2193, 2203
Richardson, D. O., 3446
Richardson, T., 17, 29, 2640
Riddell-Lawrence, S., 2611
Roberts, C. A., 1897
Roberts, R. F., 52
Robinson, P. H., 2135
Robison, O. W., 3092
Robison, J. D., 1283
Rodriguez, L. A., 819
Roehl, D., 3167, 3188
Rogers, G. W., 214, 232, 3453, 3463
Rothschild, M. F., 452
Roy, G. L., 1000, 1011, 1840, 2735
Rudan, M. A., 604, 2655
Ruelke, O. C., 2256
Russell, J. B., 2070
Ryan, J. J., 2384
Ryan, R. J., 2618
Ryninks, M., 2256

S

Sachs, M., 2723
Saeman, A. I., 505
Salomon, D. S., 1507
Sander, B. D., 3173
Sandine, W. E., 3237
Sartin, J. L., 650
Sato, E., 3482
Sato, T., 1439, 1447
Satter, L. D., 525, 697, 727, 1566, 2428, 2677
Sauer, F. D., 666
Sauer, W., 2891
Schaeffer, L. R., 773, 2730, 3033
Scharrer, E., 3267
Schingoethe, D. J., 164, 173, 1267, 3179
Schmidt, G. H., 1097, 1960
Schmidt, K. A., 46
Schneider, J. C., 2271
Schneider, P., 2143
Schoenberger, P. S., 245, 2570
Schricker, B. R., 1573
Schroeder, C. L., 2010
Schucker, B. L., 870
Sciancalepore, V., 2655
Seas, S. W., 3179
Segura, J., 1783
Senyk, G. F., 613
Sexton, S., 257
Seymour, E. H., 539, 1691, 2292
Seymour, W. M., 2936
Shahani, K. M., 3203, 3222
Sharma, A. K., 819
Sharma, B. K., 2406, 2670, 3509
Shaver, R. D., 1556
Sheffield, L. G., 68, 75, 337, 2855
Shelef, L. A., 2618
Shenk, J. S., 1955
Sheth, H., 2891
Shinners, K. J., 1536, 1546
Shockey, W. L., 722
Short, T. H., 3516
Shriver, B. J., 737
Shusheng, K., 2241
Sieber, M., 477, 3437
Silva, I. D., 1625, 2513
Sklan, D., 2143
Sklare, S. D., 414
Skopp, J., 2449
Slocum, S. A., 589, 596
Smit, J.A.H., 2772
Smith, C. A., 3505
Smith, D. E., 46, 2807, 3173
Smith, K. L., 245, 2520
Smith, L. W., 996
Smith, R. D., 3470
Smith, T. R., 1667
Smithard, R. R., 2108
Smothers, C. D., 3446
Soderholm, C. G., 355, 712
Sohal, T. S., 3188
Soller, M., 3378
Sommerfeldt, J. L., 173, 762, 843
Sordillo, L. M., 84, 2584
Sorensen, E. L., 954
Spahr, S. L., 879
Speckman, R. A., 893
Spurgeon, K. R., 299
Stairs, R. A., 10
Stallings, C. C., 870, 2440
Stanton, T. L., 3425
Staples, C. R., 1573, 1947, 3274
Stehr, D., 2428
Stermer, R. A., 2699
Stern, K. K., 41
Stern, M. D., 3310
Steuernagel, G. R., 788
Stevenson, J. S., 1926, 2572
Stewart, J. A., 2526
Stokes, M. R., 373
Stott, A. W., 2753
Stott, G. H., 1285
Stowe, H. D., 1830
Straub, R. J., 1546
Streeter, D. H., 2799
Striem, S., 2723
Stutts, J. A., 3323
Sundheim, G., 620
Susi, H., 2622
Suzuki, Y., 627
Sweeney, T. F., 381, 946, 1161
Szabo, R. A., 3230

T

Tagari, H., 964
Takemoto, J., 1799
Tanaka, T. S., 3112, 3120
Targowski, S. P., 780
Taylor, J. F., 1361, 3100
Teather, R. M., 666
Thomas, J. W., 1830
Thompson, M. P., 1141
Tissera, G. H., 754
Titgemeyer, E. C., 421
Tjoelker, L. W., 3112, 3120
Todd, E.C.D., 3230
Todhunter, D. A., 245, 2520
Tomaszewski, M. A., 1361, 3100, 3425
Tominaga, N., 1132
Tong, P. S., 604, 2342
Torabi, M., 1093
Torre, P. M., 1078
Torrey, G. S., 52
Tucker, H. A., 68, 99
Tucker, W. B., 346, 1587, 1823, 1868, 3362
Tyrrell, H. F., 1803, 2395

U

Ullrey, D. E., 1830
Utley, P. R., 2151

V

Valdez, F. R., 1860, 2462
Van Arendonk, J.A.M., 1050, 3453, 3463
van de Voort, F. R., 290
van der Aar, P. J., 2416
Van Dijk, J.W.J., 1330
Van Eldik, L. J., 2028
Van Horn, H. H., 414, 1647, 2256
Van Leeuwen, W., 2772, 2782
Van Miert, A.S.J.P.A.M., 2772, 2782
Van Raden, P. M., 187
Van Tassell, C. P., 2271
Van Vleck, L. D., 492, 1310, 1319, 2271, 3040, 3047, 3053, 3390, 3425
Vandehaar, M. J., 3352
Vandersall, J. H., 109, 754
Varel, V. H., 1526
Varga, G. A., 737
Vasavada, P. C., 2807, 2809
Ventura, M., 1573
Verdi, R. J., 505, 534
Verheijden, J.H.M., 2772, 2782
Vesely, J. A., 273, 1000, 1011
Vicini, J. L., 658, 1232
Villa-Godoy, 1063
Vinson, W. E., 34, 2220, 2767
Voss, V. L., 2428

W

Wahab, I. M., 2554
Walgenbach, R. P., 1851
Waller, S. S., 2449
Walters, J. L., 159, 2457
Walters, J. W., 3021
Wang, J. Y., 181, 498
Warner, R. G., 3369
Watts, J. L., 261, 1616, 1934, 3143
Wauthy, J. M., 1000, 1104, 1011, 2735
Weaver, L. D., 1104
Weekes, T.E.C., 2108
Weil, A. B., 1868
Weinland, B. T., 250
Weiss, M. F., 2250, 3026
Weller, J. I., 1873, 2491
Welsch, C. W., 68, 75
Westell, R. A., 1310
Whalen, C. A., 299
Wheaton, J. E., 355, 2470
White, R. G., 1189
Whittier, W. D., 2278
Wiedmeier, R. D., 159
Wiegand, J. A., 1701
Wiersma, F., 1093, 2480
Wiggans, G. R., 1319, 1330, 3047, 3053

Wilcox, C. J., 819, 848, 925, 971, 1515, 1647
Wilder, J. S., 492
Williams, B. L., 2278
Williams, J. C., 650
Wilson, P. N., 545
Windle, L. M., 3334
Windschitl, P. M., 3310
Wing, J. M., 414
Winkleman, A., 3033
Winter, K. A., 1000, 1011, 2735
Wise, M. E., 2480
Wolfenson, D., 809, 1085, 3497
Wolffram, S., 3267
Wolynetz, M. S., 1011
Womack, J. E., 1116
Wood, D. L., 1389
Woodford, S. T., 674, 687
Woody, C. O., 1058
Wright, J. R., 1880
Wu, M.-C., 2526
Wu, X., 863
Wulff, S., 574, 1764
Wyatt, C. J., 2010

X

Xin, Z., 1587

Y

Yamamoto, Y., 627
Yamauchi, K., 1423
Yang, C., 173
Yerex, R. P., 1355
Yingwu, L., 2241
Yonekubo, A., 627
Yoshida, S., 1, 2021
Young, C. W., 1355, 1659, 1982, 2470
Youngquist, R. S., 3489, 3505

Z

Zall, R. R., 1135
Zamwel, S., 964
Zeece, M. G., 2044
Zerbini, E., 1248
Zeringue, L. K., 134
Zimmer, D. B., 2028
Zinkl, J. G., 2513

SUBJECT INDEX OF PAPERS PUBLISHED IN VOLUME 71 OF *JOURNAL OF DAIRY SCIENCE*

ASSOCIATION AFFAIRS

author index of papers in volume 71, 3599
awards program, 3528
board of directors meeting, 3552
  reorganization, 3563
errata, 3595
future meetings:
  1989 – Lexington, KY, July 31–August 4
  1990 – North Carolina State University, June 24–27
  1991 – Utah State University, June 24–27
  1992 – Ohio State University, June 21–24
Journal of Dairy Science for 1987, 552
  instructions to authors, 266
memorials:
  J. W. Lusk, 1124
  John A. Newlander, 3594
  Harold C. Olson, 1124
  Shirley W. Seas, 2607
  Emmett I. Robertson, 274
  Louis C. Thomson, 2329
new officers of ADSA, 3563, 3578, 3591
nominations for Miles-Marschall award, 2001, 2609, 2331
officers, committees, representatives of ADSA, July 1988–1989, 3578
opening ceremony, 3525
past presidents' dinner, 3553
student affiliate division articular, 8 (June), 11 (Dec)

DAIRY CATTLE PRODUCTION

BREEDS

Ayrshire

heifer feed efficiency, 1001
herdlife, 1012
milk yield, 1319

Brown Swiss

herdlife, 1012
linear type, 1882

Guernsey-Jersey

cation-anion balance, 3364
climate-production, 820
fat-lasalocid, 2153
linear type, 1882
mastitis, 1397, 3144
milk fat hydrolysis, 926
  iodine, 3283
  yield, 3446
particle size hay, 1276
parturient paresis prevention, 1212
plasma cell isotypes, 84
profitability, 2755
protein intake, 3470
reproduction, 2279
supplemented energy, 2659
teat dipping, 1944
udder edema, 367

Holstein

acidified milk replacer, 2195, 2203
adipose response, 644
alpha-hydroxyvitamin D_3, 2725
alpha-tocopherol, 2265
animal model, 3047, 3053
arginine, 658
beta-carotene, 181, 498, 3112, 3120
body size, 1355
  measurements, 3437
bovine oocytes, 3482
bull populations, 1346
calf, 2264
  traits, 2491
calmodulin in milk, 2246
cation-anion balance, 3362
cell blastogenesis, 1078
chickpeas, 762, 843
chilled water, 2701
citrus molasses, 415
climate-production, 820
corn gluten, 991, 1205
cottonseed, 1241, 2677, 3334
covariances for milk, 2453
dehydrated alfalfa, 729
dietary cations, 346
  choline, 109
  fatty acids, 1264
  proteins, 1647, 2123
early lactation, 2959
energy, 1233, 2936, 2959
environment, 1087, 3093, 3415
factor analysis, 477
fatty acids, 2413
  Ca soaps, 2145
fat-lasalocid, 2153
  supplement, 117
feed efficiency, 1355
fertility, 1073, 3499
follicles, 3505
forage digestion, 1557
  degradation, 2441
  physical form, 674
genetic change, 1025
  model, 3040
glucose infusion, 2181
growth, 2923, 3026
  hormones, 92, 100
health performance, 1407
heifer feed efficiency, 1001
  immunity, 1283
  management, 997
  purified diets, 3026
herdlife, 1012, 3061, 3071
high choline, 2671
  moist barley, 1260
  oil corn, 2691
  phosphorus, 1260

Holstein inbreeding, 1659
reproduction, 2279
hormone response, 2473, 2481
therapy, 1927
hot climate vs. coat color, 1093
improvement variables, 3415
insulin-like growth factor, 2923, 2937
intramammary infection, 1417
in vivo digestibility, 1861
Jet-Sploding, 746
lignosulfonate, 3310
limestone, 754
linear type, 1882
lipoprotein, 3003
management traits, 788
mastitis, 506, 836, 849, 1397, 3521
metabolic hormones, 650
methionine, 164, 525
metabolism, 3292
protected, 173
Mexico's artificial insemination program, 1379
milk fat depression, 2128
hydrolysis, 926
iodine, 3283
pricing, 1097, 1363
protein, 826
milk replacer, 1301
moment analysis, 2441
multielement buffer, 1574
N-acetyl-β-D-glucosaminidase, 2509, 2915
net metabolism, 2396
net splachnic metabolism, 1803
neutrophil function, 3112
niacin, 3339
nonregistered milk yield, 2271
oral selenium, 1831
particle size, 409, 1276, 1567
parturient paresis, 3302
pedigree indexes, 3148
phagocytic function, 781, 2513
phosphorus in calves, 2187, 3365
preruminant calf, 1632
pricing bull semen, 493
price-profit, 485
primiparous, 3092
partial absorption, 124
postpartum cow, 3490
grain, 1840
heat stress, 809
postruminal choline, 2407
potassium needs, 1869
poultry waste, 3021
productive life, 3061, 3071
profitability, 2753
protein concentrate, 698
content, 2711
degradability, 2137
digesta flow, 1248
intake, 3470
resistance, 2429
solubility, 2711
zinc-treated, 2175
reproduction, 3093
response to minerals, 971
ruminal particulate passage, 689
effects, 1240
infusion, 1824
metabolism, 2969
scours, 3013
selenium metabolism, 443
semipurified diets, 3026
shredded alfalfa, 1547
sires, 215, 1361
sodium bicarbonate, 159, 374, 381, 1232, 1591, 1824
somatic cells, 1720
somatotropin, 1515, 2937, 2944, 3274
sorghum × sudangrass, 3345
soy proteins, 1301
subtropical environment, 3274
summer cooling, 3499
teat dipping, 1941
thermal stress, 2482
thyroid hormones, 1152
treated soybean meal, 3310
haylage, 2458
traits, 224
type model, 1035
score, 232
udder edema, 367
variance estimates, 3047
veal, 3369
vitamin A, 3112, 3120
vitamin E, 1833
yeast culture, 2909
Zebu crosses, 800

Simmental

sire evaluation, 196

DAIRY HERD

aerating compost, 1679
agglutination, 1685
antibiotic test, 539, 1694
artificial intelligence, 881
coliform survival, 1676
compost, 1677
computer simulation, 2947
cowside tests, 1682
culling, 3460, 3463
diagnosis, 882
dynamic programming, 3456
economic return, 3088
enzyme-linked assay, 1682
field study, 870
groups, 872
Holsteins, 3453
herdlife, 3463
income over feed costs, 1905
information systems, 1670
management, 879, 3087, 3154
mastitis, 854
therapy, 1697
Midwest, 3154
milking management, 2535
milk yield, 3154, 3465
net revenue, 3459, 3465

on-farm computers, 1667
nutrition, 871
practices, 3164
production, 876, 2538
progesterone assays, 1682
replacer heifers, 3461
semen economics, 3100
somatotropin, 2947
strategies, 882
times milked daily, 1960
udder health, 2538
variable costs, 1965
veterinarian, 1671
waste, 1677

DISEASES

calf rotavirus, 1291
health disorders, 1412, 1849, 1929, 2557
leukemia virus, 2526

Mastitis

abraded intramammary device, 250
amino-n-hexanoic acid, 535
antibiotic residue test, 539, 1937, 2293, 2295
beta-lactamase test, 1935
blood modulation, 841
calmodulin, 2246
caseins, 508
cistern, 255
climate, 848
clinical, 1396
costs, 2760
cytotoxicity test, 837
deferoxamine, 2777
Delvotest, 540
dexamethasone, 2785
disc assay, 1588
dry period, 1078
  secretions, 2510
duplicate quarter samples, 855
economics, 258
endotoxin-induced leukocytes, 831, 2772
excised teat model, 261
fatty acids, 247
hematologic parameters, 2785
heritability, 473, 1568
humidity, 852
identification, 1619
immune complexes, 780
immunity, 2040
immunoglobulins, 2035, 2039
immunosorbent assay, 2247
incidences, 1399
infections, 854, 2573
  defense, 1395
  streptococci, 1419, 1618
intramuscular, 3244
keratin, 245, 1389
latex teat dye, 1991
lymphocyte proliferation, 40
milk leukocytes, 783
  blood proteins, 831
mitogens, 1079
mononuclear cells, 1080
N-acetyl-β-D-glucosaminidase, 2509, 2915
neutrophils, 1628, 2516, 3522
nitroblue tetrazolium, 1627, 2514
pathogens, 1628, 2517
  environment, 246, 2523
Penzyme test, 540
phagocytosis, 782, 1625, 2515, 3533
plasma cell isotypes, 87
polymorphonuclear leukocytes, 841
postmilking antisepsis, 263
prepartum, 1942
prevention, 1217, 2287
productivity, 2286
proteolysis, 508
rectal temperature, 2786
rumen frequency, 2787
somatic cells, 252, 259, 508, 830, 2247, 2287, 2509, 2917
susceptibility, 1935
staphylococcus resistance, 1937
subtropical, 1390
teat canal, 245, 1389
  dipping, 1416
  keratin, 1389
  therapy, 1144, 1694
  udder health, 2584
  preparation, 1417
  veterinary services, 2280
  vitamin D, 1215
  weather, 849
  zinc, 2778

Parturient Paresis

alpha-hydroxyvitamin D_3, 1211, 2723
ammonium salts, 3306
hypocalcemia, 1214
maternal Ca, 2726
neonatal Ca, 2726
periparturient cow, 2584

ECONOMICS

alternative markets, 1793
  policies, 864
base plan, 2297
categories, 548
cheese yield, 1101
component pricing, 1097
computer simulation, 2947
dairy breeds, 1099
economic returns, 3088
fat test, 495
fluid milk price, 1790
food security act, 2804
genetic improvement, 1795
herdlife variation, 487
Holstein profit, 2755
  sires, 3100
income over feed costs, 1905
Jersey profit, 2755
lifetime, 489

management response, 548
manufactured product value, 1793
Mexican AI sires, 1378
milk supply management, 2298
  Midwest, 2305
  West Coast, 2310
  South, 2322
milk value, 496
  components, 1789
  pricing, 866, 2300, 2306, 2804
product prices, 1791
quotas, 2298
  mandatory, 2305
reproductive management, 1388
risk factor, 545
semen returns, 492, 1380
  profit, 3102
sire selection, 1382
  evaluation, 493
somatotropin, 2944
surplus milk, 2301
times milked daily, 1960
types, 495
US Government policies, 863

GENETICS AND BREEDING

accuracy, 2215
additive factors, 199
age, 807
A-inverse, 1349
all lactation model, 1321
all records, 210
analysis, 1878
ancestry, 1663
animal models, 1034, 1311, 1319, 1325, 1330, 3040, 3047, 3053, 3132
artificial insemination, 1970, 1985
assumptions, 1339
Ayrshire milk yield, 1319
Bayes criterion, 1916
  method, 3073
Bayesian methods, 452
best linear unbiased procedures (BLUP), 216, 3128, 3399
body size, 1357
  weight, 3441
breeding age, 2733, 2739
  value, 465, 2792
buck transmitting ability, 2243
bull selection, 3391
Canadian bulls, 1351
categorical data, 465
classification scores, 234, 3447
computing strategy, 1036
conversion, 1612
corpus luteum, 1064
correction factors, 197
cow attrition, 1903
  evaluation, 1989
  index, 2223, 2233, 3415
crossbreeds, 803
crossbreeding, 1011, 1025
crossline, 1004
culling, 777, 1021, 1897, 1905, 1916, 3518, 3460, 3463
cytogenetics, 1116
cytoplasmic effects, 2505, 3393
dairy goat model, 1330
dairy producers, 788
dam-daughter, 1994
dam-son path, 1977
deoxyribonucleic acid, 1120, 3379
differential weighing, 1877
dystocia, 2491
egg transfer, 1977
energy balance, 1068
environmental milk yield, 3418
evaluation, 2290, 2232
extended lactation, 3431
factor analysis, 480
fat percent, 3409
feed efficiency, 1000, 1358, 3443
gene mapping, 1117
generation interval, 1970
genetic change, 1025
  correlations, 471, 479
  engineering, 29, 2640
  gain, 2551
  relationships, 1346
genomes, 1119
goat breeding value, 2242
  evaluation, 1331
group rules, 1317
growth, 1007
health, 791
Henderson's model, 2790
herd income, 1910
  mean, 3407
herdlife, 1016
heritability, 229, 473, 793, 2273, 2505, 3043, 3056, 3393
heterogeneity, 3037
heterosis, 805
Holsteins, 1347, 1355, 2271
hybridization, 3380
improvement, 1982, 1993
  industry view, 1967
inbreeding, 1663
income, 1919
insemination, 1052
iteration, 1324, 1334
Jersey traits, 3448
lactation, 2505
last sample day, 3431
later records, 211
lifetime performance, 2741
linear type, 225, 1895, 2745
  traits, 477, 481
longevity, 215
male fertility, 2732
management guide, 1051, 1367
  traits, 788
mastitis parameters, 472
merit, 2904
milk prices, 1364, 1920
  traits, 233

yield, 470, 1028, 1882, 2221, 2275, 3408, 3417, 3424, 3427, 3442
mixed model equations, 1341
model, 1339
mortality, 2491
multiple ovulation, 1977
traits, 472, 790
nonadditive effects, 3130
nonreturn rate, 2732
overlapping generations, 2553
partial lactations, 1877
phenotypic correlations, 230, 1884
plasma hormones, 2473
polymorphisms, 3384
population control, 1025
prediction, 2548, 2792
difference, 1613
error variances, 2135, 3128, 3150
productive life, 3061, 3071
profitability, 205, 1363, 1902, 1910, 3518
progeny test, 3150
progesterone, 1068
progress, 1969, 1994
pureline, 1004
rations, 1360
recursive estimations, 464
red Holsteins, sires, 196
registered vs. nonregistered cows, 2275
regression coefficients, 237
repeatability, 2235
replacements, 1052
reproduction, 804, 1374, 2740
traits, 1929
restricted estimated maximum likelihood (REML), 192, 776, 3052, 3058
restricted fragment length, 3382
risk, 1921
Saanen goat, 2241
selected base populations, 3400
selection, 192, 1028, 1360
simulation, 193, 774, 3137
simultaneous evaluation, 1318
sire-daughter path, 1998
environment, 195
evaluation, 204, 1609, 2210, 2470
fixed value, 3401
pedigree, 3148
proof, 1040
selection, 1361, 2913, 3516
service, 1367, 1373
son path, 1978
variance, 3036, 3073
somatic cells, 470
squared errors, 3141
states, 3054
stayability, 215, 3061, 3071
supercomputer, 1319, 1330
survival, 1020
threshold model, 2498
trends, 1905, 1912
truncation selection, 2545
type, 216
scores, 233
traits, 223, 1042, 3448
US bulls, 1351
variance components, 191, 778, 1340, 2220, 3051
Weibull model, 3065, 3074
Zebu-Holstein, 800

LACTATION

body weight, 1520
catecholamine, 1175
cation-anion balance, 346
chewing activity, 680
climate, 821
coat color, 1095
cool environment, 1087
curves, 1600
dry period, 3081
estimated yield, 1189
fatty acids, 928
haylage, 677
heat stressed, 809, 1088, 1094
heifer, 643
high yield, 654
hormones, 2470
immunoglobulin, 2037
insulin, 663
Israeli, 1086
late, 2135
milk components, 1518
fat depression, 2131
iodine, 2386
multiphasic analysis, 1598, 1601
pregnancy, 929
prepartum heat stress, 809
milking, 1406
profit, 2761
progesterone, 813
somatic cells, 930
thermal stress, 2480
water effects, 2699

Yield

abomasal infusion, 2409
alfalfa protein, 703
silage, 411
arginine, 663
barley plus methionine, 167
plus high moisture, 1263
basal diet plus minerals, 976
calcium salts, 2147
chick peas, 765
chilled water, 2703
choline, 113, 2675
citrus molasses, 418
climate interaction, 823
concentrates, 1846
corn by-products, 994
corn gluten, 1209
cottonseed, 2685
dehydrated alfalfa, 734
early lactation, 161, 373, 381, 2959
energy sources, 2962
enzyme-treated haylage, 710, 2461
fat plus lasalocid, 2156
plus somatotropin, 1367

fatty acids, 3357
fescue, 1279
fiber, 678
fish plus soybean meal, 1251
forage, 674, 1201, 1559
growth hormone, 44, 103
hay crop silage, 376, 383
hay, 691
heat stress, 1089, 1094
high oil corn, 2697
high protein, 1651, 2140, 2472
  plus Zn, 2174
hydroxylated soybean meal, 986
intravenous arginine, 663
long-chain fatty acids, 2414
net portal absorption, 130
niacin, 3342
prilled fat, 122
pregnancy, 929
prepartum milking, 1410
ration plus sodium bicarbonate, 1235
selected Holsteins, 2474
silage, 2466
somatotropin, 358, 663, 1519, 3276
soybean meal, 177, 2685, 2714
splanchnic metabolism, 1806
sunflower seed, 1271

NUTRITION

Calf

acidified milk, 2199, 2201
ad libitum feeding, 2207
antibodies, 1305
birth weight, 815
bone phosphorus, 2191
calcium plus trace elements, 1298
cation-anion balance, 3364
corn oil, 3015
daily gains, 3367
dietary iron, 440
diets, 3018
feeding management, 1001
group vs. pens, 2209
growth, 1307
heart muscle lipids, 437
Holstein bulls, 2181, 2264
housing, 2196, 2203
lipid classes, 3006
magnesium, 3372
milk replacers, 1301, 2181
minerals, 1295
phosphorus, 3364
plasma calcium, 2725
preruminant, 1632, 2181
serum calcium, magnesium, phosphorus, 1297, 2189
scours, 3013
sodium bicarbonate plus zeolite, 949
sodium chloride, 3374
soy proteins, 1305
tissue fatty acids, 439
triglycerides, 2182
trypsin inhibitor, 1301
twice daily feeding, 2193
urolithiasis, 3369
vital organ cations, 1298
water, 3370

Cattle

abomasal infusion, 2409
acid-base balance, 1595, 3249
alfalfa base, 160
  dehydrated, 728
  enzyme treated, 707
  protein concentrate, 698
  silage, 409
adenosine monophosphate (AMP), 2409
alkalied forages, 2167
amino acids, 735, 769, 2421, 2666
arginine, 658
atomic absorption, 135
barley base, 167
  digestibility, 1263
body condition, 2132
  size, 1357
  temperature, 2707
brown midrib, 3348
buffers, 760, 3250
calcium salts, 119, 2146, 2415
carbohydrate, 2073, 2962, 3316
cellulose, 705
chickpeas, 763, 846
chilled water, 2702
choline, 113, 2409, 2671
citrus molasses, 417
complete rations, 1652
corn-based diets, 429
  gluten meal, 728, 993, 1208, 2433
  high oil, 2692
cottonseed, 2413, 2679, 3323
  niacin, 1239
  whole seed, 3337
crude protein, 3472
degradation, 701
dietary fat, 1161, 2151, 2964
  postassium, magnesium, and sodium, 971
digesta flow, 3314
digestion site, 697
dry matter intake, 104, 678, 1235
duodenal flow, 526, 733
energy intake, 1844
  sources, 2663, 2963
ethylenediamine dihydroiodide, 3288
fatty acids, 119, 2146
fat digestibility, 2164
fecal pH, 758
feed intake, 93, 359, 2706
  efficiency, 1000, 1355
feeding strategy, 3471
feedstuffs selenium, 134
fiber, 1575, 2132, 2659
formaldehyde, 737
formulated software, 1104
grain feed, 1844
high moisture barley, 1259
hormones, 1236, 3358
inhibitor, 2409
in situ disappearance, 3325

insulin-like growth factor, 3250
in vitro fermentation, 737
iodine supplement, 3285
ketoisocaproate, 3353
lactate, 127
lasalocid, 2155
lignosulfonate, 3311
limestone reactivity, 755
linear programming, 1108
long-chain fatty acids, 2414
metabolites, 1165
methionine, 425, 525, 2409
  metabolism, 3293
  protected, 164, 178
microcomputer, 1105
molasses, 416
multielement buffer, 1573
net metabolism, 2395
neutral detergent fiber, 735
niacin, 3339
nitrogen disappearance, 702
nonesterified fatty acids, 2307
nonlinear regression, 522
nutrient intake, 1577
  digestibility, 121
palm oil, 120
particle size, 520
portal absorption, 127, 131
prepartum energy, 1840
  milking, 1406
prilled fat, 117
protein, 764, 2073, 2131, 2478
  bypass, 2178
  crude intake, 2140
  degradation, 1253, 2140, 3331
  solubility, 3224
  sources, 2436, 2662
  undegradable, 1650, 2139
protected amino acids, 424
  methionine, 167, 178
proteolysis, 2423
ruminant digesta, 518
sodium bicarbonate, 160, 948, 1232, 1575, 1590, 1825, 2175
software, 1106
somatotropin, 355, 1165, 1515, 2267, 3267
soybean meal, 698, 728, 2433
  alkali-treated, 983
  alcohol-treated, 2417
  fish meal, 1254
  infusion, 1833
  prepartum, 367, 1840
  protein, 1301
  production, 2679
  treated, 173, 3314
starch digestion, 737, 754
sunflower seed, 1268
thermal stress, 3279
total mixed ration, 160
urea, 737
urine calcium, 1595
volatile fatty acids, 126
zeolite, 947

Forage

acid detergent fiber, 2118, 3510
alfalfa, 1527, 1546, 1559, 1567, 1853, 2240, 2440, 3510
  ammoniated, 1537
  haylage, 1201, 2259
  in dacron bag, 932
  orchardgrass, 2168
  quality, 955
  stems, 1536
  weevil, 955
alkali-treated, 2166
bacterial inoculant, 2459
bromegrass, 1559, 1567, 1947
canarygrass, 2113
chemical treatment, 150
dacron bag, 2262
digesta, 1563, 2449
digestibility, 146, 1560, 2260
digestion kinetics, 1952, 2119
  in vitro, 1537, 1853
dry matter disappearance, 959
early lactation, 1201
enzyme-treated haylage, 705
fescue hay, 399, 1275
fiber, 146, 1556, 1566, 2979
field drying, 1855
freeze drying, 402
grinding, 399
in situ digestion, 3512
intake, 1200, 1279, 2170
lignin, 391
log normal assumptions, 2451
Medicago quality, 954
near infrared reflectance spectroscopy, 143, 388, 398, 2980
neutral detergent fiber, 215, 1539
nitrobenzine oxidation, 390
orchardgrass, 3510
particle size, 683, 1276, 1949, 2453
Pensacola bahiagrass, 1949
physical form, 674, 1569
rumen,
  acid-base status, 1826
  ammonia, 1476
  availability, 2053
  bacteria, 668, 742, 1529, 2074
  carbohydrates, 2075
  cation-anion balance, 246
  cellulose, 1181, 1531
  chewing activity, 691
  chickpeas digestibility, 846
  dacron bag technique, 2441
  deterministic models, 1178
  digesta passage, 526, 951, 1520
  digestion, 949, 1179, 1575, 1582, 2077
  dry matter intake, 690
  dynamics, 2170
  extrusion, 750
  fermentation, 120, 1342, 3343
  fermenter, 669
  fiber, 1529, 1567

fill, 1564
fluid, 1185
incubation, 944
in situ digestion, 933, 988, 2051
in vitro degradation, 2441
Jet-Sploding, 746, 751
kinetics, 681
microbial counts, 2971
minerals, 1583
niacin, 1342
nylon bag, 746
particle size, 694, 935, 1568
pH, 120, 1580, 1826, 3247
protein degradation, 727, 2056, 2443, 3315
energy, 2070
nylon bag, 988
sources, 747
resistance, 2435
protozoa, 668, 2074
retention, 1560
rumination, 681
sodium bicarbonate infusion, 1825
simulated system, 667
turnover, 3349
volatile fatty acids, 114, 120, 682, 693, 700, 731, 846, 951, 1245, 1252, 1264, 1532, 1827, 1857, 2148, 2160, 2171, 2467, 2970
water kinetics, 1178
yeast culture, 2967
scanning microscopy, 956, 1538
selenium, 134
silage,
alfalfa, 409, 723, 2465, 2490
chopped, 152
formic acid, 1225
particle size, 410
proteolysis, 154
ribulase diphosphate, 156
ammonia, 713
anaerobic fermentation, 725
bacterial additive, 724
clostridial spoilage, 1228, 2995
composition, 1957
corn-based, 426, 2692
pH, 1201
sunflower, 1863
urea-molasses, 714
diets, 373, 381
digestibility, 412
ensiling, 714
hay crop-corn, 373, 384
in vivo digestibility, 1864
management, 2996
molasses, 1223
near infrared reflectance spectroscopy (NIRS), 1958
proteolysis, 1227
quality, 1958, 2992
respiration, 2993
ryegrass, 1225
sodium bicarbonate, 376, 371
sunflower, 2463
smooth bromegrass, 1527
sorghum X sudangrass, 3345
switchgrass hay, 1532, 2112
timothy, 932

Goat

alfalfa, 1546
almond hulls, 532
alpha-casein, 25
alpha-ketoisocaproate, 3353
Alpine, 24, 530, 2486
by-product feeds, 532
heat stress, 2489
lactation, 340, 2555
La Mancha, 1639
milk composition, 26
minerals, 339, 1869, 3355
yield, 1553
Nubian, 1639, 2486
orotic acid, 2554
potassium requirement, 1868
production, 2489
Saanen, 24, 1548, 1639, 3352
semen quality, 1644
triglyceride accumulation, 1813
Toggenburg, 1639

Heifer

accelerated growth, 998
colostrum, 1284
cottonseed, 1242
crude protein, 2712
culling, 999
diets, 3026
efficiency, 1000, 3029
forage digestibility, 1281
feed preference, 3021
growth, 1285
heated soybean meal, 2710
lactation, 643
management, 996
niacin plus cottonseed, 1240
passive immunity, 1283
physiology section, 643
poultry waste, 3024
protein supplement, 3022
raw soybean, 2710
udder edema, 366

Sheep

alfalfa, 1853
corn gluten digestibility, 1204
fatty acids, 2110
fiber, 1551, 1853
intake, 1551
in vivo digestion, 1855
physiology section, 2101
roughage:concentrate, 966
rumen heat, 967
tract digestibility, 1551
volatile fatty acids, 1352

PHYSIOLOGY

General

abomasally infused arginine, 659
adipose tissue, 643
adrenocorticotropin, 654
amino acids, 424, 770
athymic nude mice, 68
beta-carotene, 3112, 3120
brush border vesicles, 3271
calcium-modulated proteins, 2029
calf blood, 2265
  cations, 346
  chromatography, 1756
  hepatic vessels, 1630
  hormones, 2136
  metabolites, 1236
  milk diet, 2264
  lipoproteins, 3003
  selenium, 445
catecholamines, 1170
cellular responses, 2028
cholesterol, 2267
chromic catheters, 1653
dose response, 647
D-beta-hydroxybutyrate, 2397
deuterium, 1193, 1196
diurnal sheep variations, 2110
duodenal flow, 114, 424
  infusion in calf, 2183
electromagnetic flowmetry, 1636
energy stores, 2738
epinephrine, 645
fatty acids, 2110, 3008
glucose, 1807, 2183
glutathione peroxidase, 445
goat hepacytes, 1816
growth hormone, 654, 2936
guinea pig milk, 337
homeorhesis, 648
heifer, 643
hepatic metabolism, 1803
hormones, 651, 2470
immunoglobulins, 1759, 1761
immune transfer, 1288
insulin, 652, 1173
lactation, 124
lactate, 1809
lactate transport, 3270
lipid classes, 3006
low density lipoproteins, 1817
lymphocytes function, 3121
net portal absorption, 124
nitrogen, 1810
nonesterified fatty acids, 1173, 2397
neutrophil function, 3115
plasma hydroxy butrate, 2109
prepartum energy, 2936
preruminant calf, 443
protein secretion, 2901
  source, 2941
rat hepacytes, 1816
retinol, 3113
S100 proteins, 2028
selenium metabolism in calf, 447, 1830
sheep hind limb, 2109
simulated analysis modeling, 1194
sire selection, 2913
sodium dependence, 3270
somatotropin, 363, 2473
small intestine, 3271
splanchnic metabolism, 1809
steady state system, 1192
thermal stress, 2480
thyroid hormone, 1152
thyroxine, 155
tocopherol, 2267
tracer, 1190
transferrin, 1759
triglyceride, in calf, 2183
  in goat, 1817
  in rat, 1817
trihydroxybutyrate, 2108
tritium, 1191
triiodothyronine, 1155
urine collection, 2250
viscera, 2399
vital organs S100 proteins, 2030
vitamin A, 3112, 3121
volatile fatty acids, 2395

Mammary gland

acid phosphatase, 316
acinary culture, 2900
alpha-casein, 316
Angus vs. Holstein explants, 2907
athymic nude mice, 68, 75
basement membrane, 1509
beta-casein, 329, 2834
blood parameters, 371
bull tissue, 643
casein gene expression, 2898
caffeine, 513
caprine secretion, 514
cell blastogenesis, 1081
chelating chromatography, 1757
collagen, 1511
cyclic adenosine monophosphate (cAMP), 78
deoxyribonucleic acid (DNA) synthesis, 2846
development, 77
edema, 366
endotoxin-induced cells, 827
epidermis growth, 1509
epithelium, 2835, 2844
explants, 2907
extracellular matrix, 2830
fat pad, 2864
fibroblasts, 2844
growth hormone, 70
Holstein calf, 2181
ileal flow, 2181
involution, 85, 1078
isobutyl methyl xanthine, 513
insulin growth factor, 2923
keratin lipids, 1392
kinase, 325
lactose, sodium, potassium, 637
lactalbumin, 326

lactogenesis, 71, 81, 88
lipoproteins, 3003
lipopolysaccharides, 1079
membrane gene, 2835
metabolic hormones, 650
  profile, 363
metabolism, 2250
  net, 2395
milk intake yield, 829
  blood proteins, 829
mineral metabolism, 1587
mitogens, 1079
mouse, 633
phosphorylation, 325
phosphotyrosine, 320
plasma cells, 89
portal absorption, 130
serum immunoglobulin, 81, 2038
sodium bicarbonate fed prepartum, 267
stroma, 2855
teat canal keratin, 1389

REPRODUCTION

acrosome activity, 1074
  in goat, 1640
activation, 3482
beta-carotene, 181, 500, 1059
cyclic adenosine monophosphate (cAMP), 3484
chondroitin sulfates, 1076
conception, 1095, 1885, 2278, 3501
cool environment, 1087, 3498
cortisol, 2483
cowside tests, 1682, 1691
days to first ovulation, 3477
disorders, 1928, 2573
drying off, 1835
embryo culture, 2768
environment effects, 3094
estradiol, 2483
estrous behavior, 1090, 3500
  cycle, 2453
estrual group size, 3095
fertility, 1926, 2730
follicle-stimulating hormone, 3492, 3506
gamma globulins, 2770
glycosaminoglycans, 239, 3484
goat semen quality, 1644
gonadotropin-releasing hormone, 503, 3492
health, 3471
heat stress, 1088, 1093
heparin assay, 239
hyperthermia, 3500
immunoglobulin, 2760
luteal cells, 1060
  function, 1063
luteinizing hormone, 503
management, 790, 2278
maturation, 3486
nonreturn rate, 1975
oocytes, 3483
ovarian cysts, 184
ovariectomy, 3493
parameters, 3474
parturition, 1834
performance, 1090, 1848
periparturient cow, 2572
plasma urea nitrogen, 3476
postpartum cows, 1926, 3490
prepartum dystocia, 1411
primiparous Holsteins, 3092
progesterone, 184, 1060, 2482, 3507
prostaglandin, 1930
selenium, 1832
semen economics, 3100
somatotropin, 2926
sperm, 1073
traits, 3094
uterine horn, 2278
vitamin A, 1060
yield effects, 3097

REVIEWS

dietary buffering requirements, 3246
estimating rumen availability, 2051
protein-energy relationships, 2070

SYMPOSIA

cowside tests, 1682
cytogenetics and cell biology, 1116
expert systems, 879
extracellular matrix in mammary development, 2830
genetic improvement with technology, 1967
health problems in the cow, 2557
milk supply management, 2297

DAIRY FOODS

BUTTER

fatty acids, 3183
oxidation, 3183
sunflower seeds, 3179
vegetable fat adulteration, 574
Vermont test, 1764

CHEESE

Cheddar

age, 1704
beta-casein, 1714
calcium, 286
  lactate, 1701
caseins, 1723
cellular homogenates, 1128
cheese processor, 2388
cholesterol oxidation, 3176
component losses, 1716
composition, 1502
efficiency, 1711
experimental processor, 2388
flavor, 656
genetic engineering, 2640
heating time, 2611
horizontal cooker, 2388
mini-processor, 2390
moisture, 1502
phosphorus, 288

processing stage, 3173
proteolysis, 2017, 2051
recombinant chymosin, 1127
ripening, 2358
sensory properties, 2014
sodium chloride, 286, 2010
somatic cells, 1715, 1722, 2333
stirred curd, 1499, 2611
storage, 3177
suface crystals, 1703
ultrafiltration, 2337, 2342
yield, 1129, 1723, 2613, 2339

Colby

cellular homogenates, 1128
recombinant chymosin, 1127
yield, 1129

Cottage

cations, 2887
cheese processor, 2388
salt supplement, 2619
protein, 2889

Mexican style

heat-resistant phosphatase, 19
Queso Fresco cheese, 18

Quarg

amino acids, 2896
bitterness, 3190
cultures, 3194
flavor, 2895
rennet, 3188
yield, 3193

Ricotta

continuous process, 2003
curd coagulation, 2006
horizontal cooker, 2388

Soft

nitrogen fractions, 2880
ripening, 2880
ultrafiltration retentates, 2877

FROZEN FOODS

beta-galactosidase, 895
crystals, 2630
dessert, 895
heat of fusion, 2054
homogenization, 47
hydrocolloids, 2633
ice cream, 894, 2636
lactose hydrolysis, 896
meltdown, 697
milk shake, 895
product mixes, 893
sensory criteria, 48
storage, 898

MILK AND CONSTITUTENTS

age gelation, 1457
alpha-casein, 316
alpha-lactalbumin, 326, 1143
amino acids, 907, 1470
antibiotic test, 2386
Argentine condensed, 1783
Babcock test, 292
bacteriological quality, 613
beta-casein, 329, 2624
beta-lactoglobulin, 1143, 1148, 1475
bifidus milk powder, 1779
calcium-binding protein, 1141
calmodulin, 1145
casein, 2377, 2622
caseinolytic activity, 1134
cations, 346, 921
composition, 1742
cell-free extracts, 2353, 2359
copper, 2366, 2370
cream whipping, 859
cultured, acidophilus milk, 3208
  Finnish fermented, 3197
deoxyribonucleic acid (DNA) coding, 30
disc assay, 2386
Dorr-Oliver system, 2655
Dulce de Leche, 1783
electrophoresis, two dimensions, 2044
epsilon amino, 1148
evaporated milk, 1461
fatty acids, 3183
gel filtration, 2
genetic engineering, 2640
gums, 43
high performance liquid chromatography (HPLC), 628
high temperature, short time (HTST), 1459, 1495
  fractions, 2373
  market milk, 921
  modified behavior, 2640
human milk phospholipids, 61
hydrophobic interactions, 3, 1465
impedance, 615
immunoglobulins, 2036
isoelectric focusing, 2044
kappa-casein coding, 29, 2649
lactose hydrolysis, 567
  interference, 1147
lactoglobulin, 2649
lactoferrin, 8
light, 2369
lipolysis, 620
low fat, 921
lysine, 1149
milk fat analysis, 293
  fractions, 2370
milk-o-scan, 292
membrane fouling, 605
menaquinone, 631
minor proteins, 1
model system, 1455
molecular cloning, 29
nonprotein, 2379
nuclear magnetic resonance spectroscopy, 1147

pathogens, 2811, 3204
phosphorylation, 325
polysaccharides, 43
protease-peptone, 1464, 1487
protein denaturation, 1459
  fractions, 2373
  market milk, 921
  modified behavior, 2640
  two-dimensional technique, 2044
  Udy analysis, 2374
proteolysis, 1458, 1485
quality, 1484
raw, 1472
Raman spectroscopy, 2622
Roese-Gottlieb analysis, 292
skim milk cations, 919
  gelation, 1440, 1447
  gluco-delta-lactone, 1441
  heat effects, 1443, 1451
somatic cells, 1720, 1742
standard plate count, 614
sunflower seed, 3179
ultrafiltration permeate, 604, 2655
ultra-high temperature (UHT), age gelation, 1731
  protein changes, 1472
vat heating, 1475
vitamin K, human milk, 631
volatile aldehydes, 2369

Enzymes

acid phosphatase, 17, 316
  Queso Fresco cheese, 18
alcalase, 889
aminopeptidase, 1423
arginine dihydrolase, 55
behavior, 557
beta-galactosidase, 895
catalase, 55
chymosin, 1127
chymotrypsin, 905
cucumisin protease, 1132
dipeptidase, 2351
DNA lipase, 2644
kinetics, 1427
lactase, 895
lactoperoxidase, 3, 2021
lipase activity, 42, 623, 1432
lipoprotein lipase, 621
lysozyme, 559
Micrococcus enzymes, 2359
oxidase, 55
peptidase, 2349, 2359
plasmin, 1489, 1730
proteinase, 2349, 2361
purification, 1425
rennet, 1129, 2346, 3188
specificity, 1427
thiol protease, 1132
trypsin, 903
urokinase, 1730
utilization, 557
xanthine oxidase, 3, 901

Yogurt

acid production, 601
cations, 2888
freeze-dried products, 3208
gelation, 585
heated, 584, 598
hydrolyzed lactose, 301
incubation, 590
protein, 2888, 3204
proteolysis, 592, 597
raspberry, 1497
total solids, 599
ultra-high temperature (UHT), 584
viscosity, 583
vitamins A and C, 1492
whey caseinate blends, 302

MICROBIOLOGY

bacteriocin growth inhibitor, 308
bacteriophage, 276
Bacillus megaterium, 1800
Bacillus stearothermophilus disc assay test antibiotics, 2292, 2384
Bacillus subtilus cellular homogenates, 1128
Bacteroides amylophilus rumen fermentations, 2417
Bacteroides ruminicoli rumen fermentations, 2417
Bacteroides succinogenes rumen fermentation, 1527
Bifidobacterium adolescentis growth promotion, 3216
Bifidobacterium longum milk powder, 1777
bile salts, 3223
Brucella abortus bovine neutrophils, 1625
Campylobacter species, thermal inactivation, 3231
Candida tropicalis, single cell protein, 1135
carbon dioxide growth inhibitor, 52
clone complementary deoxyribonucleic acids, 2647
coliform survival, 1676
Corynbacterium bovis mastitis phagocytosis, 87, 1942, 2040, 2513
Enterobacteriaceae in cheese, 19
Escherichia coli cloning kappa-casein, 31
  dexamethazone, 2782
  heat inactivation, 3234
  hemorrhagic 0157: H7, 3230
foodborne pathogens, 3241
growth promotion, 3217
genetic engineering, 29, 2640
Klebsiella pneumoniae free fatty acids, 246
Kluyveromyces fragilis whey fermenter, 1800
Kluyveromyces marianus single cell protein, 1135
Lactobacillus acidophilus premature death, 306, 3222
Lactobacillus bulgaricus yogurt, 591, 597
Listeria monocytogenes niacin inhibited, 3237
listeriosis, 17
molecular cloning, 29
Micrococcus species protease activity, 2358
milk pathogens, 2807–2820
mutants, 1771
Mycoplasma bovis mastitis, 1625
Penicillium caseicolum aminopeptidase kinetics, 1423
phage sensitivity, 275
plasmin DNA, 276

Propionibacterium strains, 1769
mutants, 1771
Pseudomonas fluorescens, lipolytic activity, 41, 1432
psychrotroph growth, 52, 614
Rhodopseudomonas spaeroides ferments whey, 1800
Salmonella typhimurium, lipopolysaccharide, 1079
Staphylococcus aureus, 87, 855, 1943, 2040
antibiotic therapy, 3144
antimicrobial susceptible, 1937
leukocytes, 836
mastitis, 1625, 3521
phagocytosis, 783, 2517
Streptococcus cremoris, Quarg cheese, 3194
Streptococcus cremoris mutant, 2350
Streptococcus faecalis, long-chain fatty acids, 246
Streptococcus lactis spp. T_s, Finnish fermented milk, 3200
Streptococcus species, udder infection, 87, 246, 855, 1616, 1625, 1943, 2521
Streptococcus thermophilus yogurt, 597
Yersinia enterocolitica, thermal inactivation, 3234

WHEY

affinity chromatography, 1747
acid, sweet, 889
alcalase, 887
beta-galactosidase, 893
coagulants, 2347
denaturation, 11
experimental processor, 2388
frozen dairy products, 893
globulins, 2023
glucosamine, 11
hydrolysis products, 889
hydrophobic interactions, 2
immunoglobulins, 1753
lactoferrin, 1754
lactoperoxidase, 2021
lactose, 567
light susceptibility, 2371
membrane fouling, 2346
milk acid, 2021
minor proteins, 1
mixed cultures, 1799
permeate, 1137, 2345
proteins, 2655
Swiss, 1799
proteins, 10, 887, 1135
single cell protein, 1135
surface tension, 3169
ultrafiltration permeate, 3171
yeast, 1135, 1800

REVIEWS

enzyme behavior and utilization, 557
genetic engineering, 2640
pathogenic bacteria in milk, 2809

SYMPOSIUM

pathogenic bacteria in industry, 2817